

U.S. Patent Application Serial No. 09/762,870
Filed: March 22, 2001
AMENDMENT AND RESPONSE TO OFFICE ACTION

CLAIM AMENDMENTS

1. (Original) A composite material comprising colloidal silica-bonded alkaline earth silicate fibers in which any bonding agents or fillers comprise low amounts of alumina so that the composite material comprises less than 1% by weight aluminium expressed as Al_2O_3 .
2. (Currently Amended) A composite material as claimed in claim 1 in which the composite material comprises less than 0.5% by weight ~~by weight~~ of aluminium expressed as Al_2O_3 .
3. (Currently Amended) A composite material as claimed in claim 2 in which the composite material comprises less than 0.1% by weight ~~by weight~~ of aluminium expressed as Al_2O_3 .
4. (Original) A composite material as claimed in claim 1 in which the composite material is essentially free of aluminium.
5. (Original) A composite material as claimed in claim 1 and comprising less than 1% by weight sodium expressed as Na_2O .
6. (Original) A composite material as claimed in claim 5 and comprising less than 0.5% by weight sodium expressed as Na_2O .

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7. (Original) A composite material as claimed in claim 6 and comprising less than 0.1% by weight sodium expressed as Na₂O.

8. (Original) A composite material as claimed in claim 1 in which the composite material is essentially free of sodium.

9. (Original) A composite material as claimed in claim 1 and comprising less than 0.5% by weight boron expressed as B₂O₃.

10. (Original) A composite material as claimed in claim 9 and comprising less than 0.1% by weight boron expressed as B₂O₃.

11. (Currently Amended) A composite material as claimed in claim 1 in which the alkaline earth silicate fibre is itself capable of adapted for use without excessive shrinkage at temperatures in excess of 1200 °C.

12. (Currently Amended) A composite material as claimed in claim 1 in which the material is obtainable by vacuum forming from a slurry containing the following ingredients (in weight %):-

Alkaline earth metal silicate fibres 70-85%

Colloidal silica (30% SiO₂ by weight) 3-25%

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Organic binder 1-6%

Filler 11-20%

13. (Currently Amended) A composite material as claimed in claim 12

comprising:-

Alkaline earth metal silicate fibres 70-90%

Silica binder from colloidal Colloidal silica (30% SiO₂ by weight)

1-10%

Organic binder 1-6%

Filler 11-20%

14. (Currently Amended) A composite material as claimed in claim 13

comprising:-

Alkaline earth metal silicate fibres 77.3-87.2%

Silica binder from colloidal Colloidal silica (30% SiO₂ by weight)

1.2-8.2%

Organic binder 3.3-4.7%

Filler 12.8-18%

15. (Original) A composite material as claimed in claim 1 in which the

material is a paper comprising:-

Alkaline earth metal silicate fibre 90-95%

Organic binder 5-10%
Organic flocculants <1%

16. (Original) A composite material as claimed in claim 15 in which the organic binder is an acrylic latex.

17. (Currently Amended) A composite material as claimed in claim 1 in which the material is a material obtained by vacuum forming from a slurry comprising the ingredients:

Alkaline earth metal silicate fibre	60 parts by weight
Colloidal silica (30% by weight SiO ₂)	12-14 parts by weight
Starch	2.5 parts by weight

based upon the total weight of solids added to the slurry;

and in which the colloidal silica has a pH of less than 8.

18. (Currently Amended) A composite material comprising 4-12% by weight colloidal silica, 3-6.5% starch, balance ~~to~~ 100% alkaline earth silicate fibre, to total 100% based on the weight of composite material.

19. (Currently Amended) A composite material as claimed in claim 18 and comprising 4-9% by weight colloidal silica, 3.5-5% starch, balance ~~to~~ 100% alkaline earth silicate fibre, to total 100% based on the weight of composite material.

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20. (Original) A composite material as claimed in claim 18 comprising about 6% colloidal silica.

21. (Currently Amended) A composite material as claimed in claim 1 in which the material is a material obtainable by vacuum forming from the ingredients:-

“White water” component	50-80% by volume of 30% solids colloidal silica with 20-50% by volume mains water
Alkaline earth metal silicate fibre	0.5-4% by weight <u>of fibre, calculated as</u> <u>the weight of the fibre solids to per</u> <u>weight of white water component</u>

and in which the colloidal silica has a pH of less than 8.

22. (Currently Amended) A composite material as claimed in claim 1 in which the material is a material obtainable by vacuum forming from the ingredients:-

“White water” component	90-100% by volume of 30% solids colloidal silica with 10-0% by volume mains water
Alkaline earth metal silicate fibre	2-3% by weight <u>of fibre, calculated as the</u> <u>weight of the fibre solids to per weight of</u> white water component

and in which the colloidal silica has a Ph of less than 8.

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23. (Currently Amended) A composite material as claimed in claim 21 and which comprises 15-30% by weight silica binder formed from colloidal silica, balance fibre.

24. (Original) A composite material as claimed in claim 17 in which the fibre is present in amounts comprising 0.5-5% by weight of the water in the slurry.

25. (Currently Amended) A composite material as claimed in claim 1 in which the material is a material obtainable by vacuum forming from the ingredients

"White water" component	65-100% by volume of 40% solids low sodium content colloidal silica having a pH of less than 10 with 35-0% by volume mains-water
Alkaline earth metal silicate fibre	2-3% by weight of <u>fibre, calculated as weight of fibre solids to per weight of</u> white water component

wherein the sodium content of the colloidal silica is below 0.1 wt%.

26. (Original) A composite material as claimed in claim 22 and which comprises 15-30% by weight colloidal silica, balance fibre.

27. (Withdrawn) A composite paper comprising, in weight percent:

Alkaline earth metal silicate fibre	90-95
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Organic binder	5-10
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Organic flocculants	<1.
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28. (Withdrawn) A composite paper as claimed in claim 27 in which the organic binder is an acrylic latex.